UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/608,616	06/30/2000	Jayashankar Bharadwaj	042390.P8130	9458

7590   06/03/2004

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EXAMINER
KISS, ERIC B

ART UNIT	PAPER NUMBER
2122	

DATE MAILED: 06/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/608,616	BHARADWAJ ET AL.
	Examiner	Art Unit
	Eric B. Kiss	2122

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>03 May 2004</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,11-14,21-24 and 31-35* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,11-14,21-24 and 31-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>07 November 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1.   A request for continued examination under 37 CFR 1.114, including the fee set forth in

37 CFR 1.17(e), was filed in this application after final rejection. Since this application is

eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e)

has been timely paid, the finality of the previous Office action has been withdrawn pursuant to

37 CFR 1.114. Applicant's submission filed on May 3, 2004, has been entered. Additionally,

Applicant's submission filed April 2, 2004 (Amendment after Final Rejection), has been entered.

2.   Claims 1-4, 11-14, 21-24, and 31-35 are pending.

Response to Amendment

3.   Applicant's amendments filed April 2, 2004 and May 3, 2004, appropriately address the

objection to the drawings as detailed in the Office action mailed February 2, 2004. Accordingly,

this objection is withdrawn in view of Applicant's amendments.

4.   Applicant's amendments filed April 2, 2004 and May 3, 2004, appropriately address the

objection to claims 1, 11, 21, and 31, as detailed in the Office action mailed February 2, 2004.

Accordingly, this objection is withdrawn in view of Applicant's amendments.

Response to Arguments

5.   Applicant's arguments filed May 3, 2004, have been fully considered but they are not

persuasive.

The Examiner asserts that a profiling counter starting at zero can be considered as initial

profile data. As cited by Applicant in the block quote on p. 10 of Applicant's remarks, *Kistler*

discloses calculating a similarity measure to detect changes in profile data between two time

steps, namely, p_{t-1} (the profile data vector at time *t-1*) and p_t (the profile data vector at time *t*). In

this case, the profile data vector p_{t-1} can be considered as "initial" profile data for the current

optimization calculation. Note that the cited reference to "$p_{t-1} = 0$ and $p_t = 0$" does not imply that

there is no initial profile data, but rather that the geometric angle, α, would be undefined because

of the resulting indeterminate form in the arccosine function's operand. What the cited passage

actually states is that the initial profile data is the zero vector, and to remove the indeterminate

form from the α calculation, 1 is added to the denominator to arrive at a valid value for α. Thus,

even at initialization, initial profile data (equal to the zero vector) is available.

6.   In view of Applicant's unpersuasive arguments, the previous rejection is maintained and

reproduced below.

Claim Rejections - 35 USC § 102

7.   The text of those sections of Title 35, U.S. Code not included in this action can be found

in a prior Office action.

8.   Claims 1-4, 11-14, 21-24, and 31-35 are rejected under 35 U.S.C. 102(a) as being

anticipated by Thomas Kistler, "Continuous Program Optimization," 1999, Ph.D. thesis,

Department of Information and Computer Science, University of California, Irvine, CA

(hereinafter *Kistler*).

As per claim 1, *Kistler* discloses installing a program onto a target machine, the program

having an intermediate representation (see, for example, subsections 2.1 and 2.2); executing the

program using the intermediate representation and an initial profile data (see, for example,

subsections 2.1 and 2.2); generating a current profile data (see, for example, subsections 2.4 and

2.5); comparing the current profile data with the initial profile data (see, for example, subsections

2.4 and 2.5); and recompiling the intermediate representation to optimize the program when the

current profile data in comparison with the initial profile data has exceeded a predetermined

threshold (see, for example, subsections 2.4, 2.6, and 2.7).

As per claim 2, *Kistler* further discloses installing further comprising: installing a

continuous compiler (see, for example, subsections 2.1 and 2.3); installing a runtime monitor

(see, for example, subsections 2.1 and 2.4); copying the intermediate representation to the target

machine (see, for example, subsection 2.2); building the initial profile data (see, for example,

subsections 2.1, 2.2, and 2.5); and compiling the intermediate representation to create an

executable file (see, for example, subsection 2.3).

As per claim 3, *Kistler* further discloses executing further comprising: running an

executable version of the program (see, for example, subsections 2.2 and 2.3); collecting samples

of process information at a controlled rate (see, for example, subsections 2.4 and 2.5); and while

the target machine is idle, generating binary level and high level profiles (see, for example,

subsections 2.1 and 2.5).

As per claim 4, *Kistler* further discloses recompiling further comprising: customizing

compiler optimizations based on the current profile data generated during program execution

(see, for example, subsections 2.1, 2.4 and 2.5).

As per claims 11-14, 21-24, and 31-34, these are machine-readable medium, system, and

apparatus versions of the claimed method steps discussed above (claims 1-4). Further, *Kistler*

discloses the method being implemented on top of the Oberon System 3 for the Macintosh®

platform (first paragraph of subsection 2.1) and further discloses implementing the method into

continuous optimization framework for the PowerPC 604e™ superscalar out-of-order processor.

The use of a machine-readable medium is considered inherent and necessary in arriving at and/or

utilizing these implementations, and all other limitations have been addressed as set forth above.

As per claim 35, *Kistler* further discloses customizing compiler optimizations being performed using annotations in a high level representation of an executable program which relate portions of the executable to the high level representation (see, for example, subsections 2.2, 2.3, and 2.4).
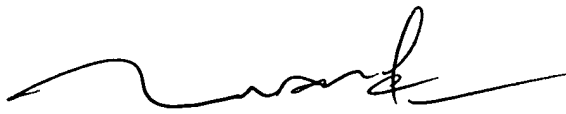
Conclusion

9.   Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Eric B. Kiss whose telephone number is (703) 305-7737. The Examiner can normally be reached on Tue. - Fri., 7:30 am - 5:00 pm. The Examiner can also be reached on alternate Mondays.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Tuan Dam, can be reached on (703) 305-4552. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EBK /EBK
May 20, 2004

TUAN DAM
SUPERVISORY PATENT EXAMINER